

What is claimed is:

1. A fabrication method of a semiconductor integrated circuit device, comprising the step of using a first photomask which has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin and a second photomask which has, as a blocker against an exposure light, a metal film, depending on the production amount or fabrication step of the semiconductor integrated circuit device.

2. A fabrication method of a semiconductor integrated circuit device according to claim 1, comprising:

(a) a step wherein a maker prepares a menu for customer including a production type using the first photomask and a production type using the second photomask, and

(b) a step wherein a production client selects a production type most suited for the semiconductor integrated circuit device or a predetermined fabrication step of the semiconductor integrated circuit device from the menu for customer.

3. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) judging whether the production amount of the semiconductor integration circuit device exceeds a predetermined threshold production amount or not; and

(b) when the production amount of the semiconductor integrated circuit device does not exceed the threshold value, using a photomask which has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin film upon exposure treatment.

4. A fabrication method of a semiconductor integrated circuit device according to claim 3, further comprising the step of using a photomask which has, as a blocker against an exposure light, a metal film upon exposure treatment when the production amount of the semiconductor integrated circuit device is expanded to exceed the threshold value.

5. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) judging whether the production amount of the semiconductor integration circuit device exceeds a predetermined threshold production amount or not;

(b) when the production amount of the semiconductor integrated circuit device exceeds the threshold value, judging whether the function of the semiconductor integrated circuit device has been determined or not;

(c) when the function has not been determined, using a photomask which has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin film upon exposure treatment.

6. A fabrication method of a semiconductor integrated

circuit device according to claim 5, further comprising the step of using a photomask which has, as a blocker against an exposure light, a metal film upon exposure treatment in a stage when the function of the semiconductor integrated circuit device is determined.

7. A fabrication method of a semiconductor integrated circuit device according to claim 5, further comprising the step of using a photomask which has, as a blocker against an exposure light, a metal film upon exposure treatment when the function of the semiconductor integrated circuit device has been determined.

8. A fabrication method of a semiconductor integrated circuit device, comprising the step of using a photomask, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment prior to a mass production step.

9. A fabrication method of a semiconductor integrated circuit device, comprising the step of using a first photomask which has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment prior to a mass production step, and in the mass production step, using a second photomask which has, as a blocker against an exposure light, a metal film upon exposure treatment.

10. A fabrication method of a semiconductor

integrated circuit device, comprising the step of using a first photomask which has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment in a step of forming patterns relating to the constitution of a logic circuit, while using a second photomask which has, as a blocker against an exposure light, a metal film upon exposure treatment in a step of forming patterns relating to a unit cell.

11. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) using a first photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment for forming patterns relating to the constitution of a logic circuit prior to a mass production step of the semiconductor integrated circuit device,

(b) using a second photomask having a metal as a blocker against an exposure light upon exposure treatment for forming patterns relating the constitution of the logic circuit in the mass production step of the semiconductor integrated circuit device, and

(c) using the second photomask having a metal as a blocker against an exposure light upon exposure treatment for forming patterns relating to a unit cell prior to the

mass production step and in the mass production step.

12. A fabrication method of a semiconductor integrated circuit device having an ROM, comprising the steps of using a first photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment for forming patterns relating to data writing of the ROM; and using a second photomask having a metal as a blocker against an exposure light upon exposure treatment for forming patterns other than those relating to the data writing.

13. A fabrication method of a semiconductor integrated circuit device having an ROM, comprising the steps of:

(a) using a first photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment for forming patterns relating to data writing of the ROM prior to a mass production step of the semiconductor integrated circuit device,

(b) using a second photomask having a metal as a blocker against an exposure light upon exposure treatment for forming patterns relating to data writing of the ROM in the mass production step of the semiconductor integrated circuit device; and

(c) using the second photomask having a metal as a blocker against an exposure light upon exposure treatment for forming patterns other than those relating to data writing of the ROM prior to the mass production step and in the mass production step.

14. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) a step wherein a producer of the semiconductor integrated circuit device prepares a menu for customer including a production type using a first photomask which has, as a blocker against an exposure light, an organic photosensitive resin, and a production type using a second photomask which has a metal film as a blocker against an exposure light, each upon exposure treatment, and

(b) a step wherein a production client selects, from the menu for customer, the optimum production type for the semiconductor integrated circuit device or a predetermined fabrication step of the semiconductor integrated circuit device.

15. A fabrication method of a semiconductor integrated circuit device, comprising, upon forming patterns of the semiconductor integrated circuit device, properly using

(a) exposure treatment using a first photomask having, as a blocker against an exposure light, an organic material

containing an organic photosensitive resin;

(b) another exposure treatment using a second photomask having a metal film as a blocker against an exposure light; and

(c) direct writing treatment using an energy beam.

16. A fabrication method of a semiconductor integrated circuit device according to claim 15, comprising the steps of:

judging whether the using amount of the photomask exceeds a predetermined threshold using amount or not;

judging whether the first photomask is usable or not when the using amount of the photomask is less than the threshold value, and

carrying out exposure treatment with the first photomask when the first photomask is usable while carrying out direct writing treatment using the energy beam when the first photomask is unusable.

17. A fabrication method of a semiconductor integrated circuit device according to claim 15, comprising the steps of:

judging whether the using amount of the photomask exceeds a predetermined threshold using amount or not;

judging whether the second photomask is usable or not when the using amount of the photomask exceeds the threshold value,

carrying out exposure treatment with the second photomask when the second photomask is usable,

judging whether the first photomask is usable or not when the second photomask is unusable,

carrying out exposure treatment with the first photomask when the first photomask is usable, and

carrying out direct writing treatment with the energy beam when the first photomask is unusable.

18. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) forming a first photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin on a semiconductor-integrated-circuit-device evaluator's side;

(b) transferring a predetermined pattern onto a semiconductor wafer by exposure treatment with the first photomask, on a semiconductor-integrated-circuit-device maker's side; and

(c) evaluating the semiconductor wafer to which the predetermined pattern has been transferred, on the semiconductor-integrated-circuit-device evaluator's side.

19. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) using a photomask having a metal film as a blocker against an exposure light upon exposure treatment in a mass



production step of the semiconductor integrated circuit device;

(b) discarding the photomask having a metal film as a blocker against an exposure light after completion of the mass production step of the semiconductor integrated circuit device; and

(c) using another photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment in reproduction of the semiconductor integrated circuit device.

20. A fabrication method of a semiconductor integrated circuit device according to claim 19, wherein upon reproduction of the semiconductor integrated circuit device, in the stage when the production amount exceeds a predetermined threshold production amount, a photomask having a metal film as a blocker against an exposure light is used instead of the another photomask having, as a blocker against an exposure light, an organic material containing an organic photosensitive resin upon exposure treatment.

21. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) using a first photomask having, as a blocker against an exposure light, an organic material containing

an organic photosensitive resin upon exposure treatment prior to a mass production step of the semiconductor integrated circuit device; and

(b) using a second photomask having a metal film as a blocker against an exposure light upon exposure treatment in the mass production step of the semiconductor integrated circuit device,

wherein said first photomask has a plurality of semiconductor chip transfer regions disposed thereon, and

patterns having data of the semiconductor integrated circuit device which are different each other are disposed in the transfer regions, respectively.

22. A fabrication method of a semiconductor integrated circuit device according to claim 21, wherein said second photomask has a plurality of semiconductor chip transfer regions disposed thereon and patterns having the same data of the semiconductor integrated circuit device selected in an evaluation step are disposed in the transfer regions.

23. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) disposing a semiconductor chip transfer region of a plurality of semiconductor integrated circuit devices on one photomask in the order of completion of a design period of the semiconductor integrated circuit devices; and

(b) carrying out exposure treatment with the one photomask.

24. A fabrication method of a semiconductor integrated circuit device according to claim 23, wherein the one photomask has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin.

25. A fabrication method of a semiconductor integrated circuit device, comprising the steps of:

(a) in a first pre-production step, carrying out exposure treatment using a photomask having, disposed thereon, a semiconductor chip transfer region of a plurality of semiconductor integrated circuit devices and judging the quality of the patterns thus transferred; and

(b) in a second pre-production step, carrying out another exposure treatment using a photomask having, disposed thereon, a semiconductor chip transfer region of the plurality of semiconductor integrated circuit devices which are judged bad in said first pre-production step and judging quality of the patterns thus transferred,

wherein the photomasks used in the first and second pre-production steps each has, as a blocker against an exposure light, an organic material containing an organic photosensitive resin.